1. Simplify the expression below and choose the interval the simplification is contained within.

$$1 - 13 \div 17 * 20 - (14 * 8)$$

   A. $[-228.35, -218.35]$

   B. $[-131.29, -122.29]$

   C. $[-111.04, -105.04]$

   D. $[112.96, 115.96]$

   E. None of the above

2. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{19044}{36}}$$

   A. Whole

   B. Not a Real number

   C. Irrational

   D. Integer

   E. Rational

3. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{28900}{289}}$$

   A. Integer

   B. Rational

   C. Irrational

   D. Not a Real number

   E. Whole

4. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{-20}{-12} + 64i^2$$

  A. Pure Imaginary

  B. Nonreal Complex

  C. Not a Complex Number

  D. Rational

  E. Irrational

5. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(10 + 2i)(4 + 3i)$$

  A. $a \in [42, 50]$ and $b \in [16, 26]$

  B. $a \in [30, 37]$ and $b \in [35, 43]$

  C. $a \in [30, 37]$ and $b \in [-43, -36]$

  D. $a \in [39, 44]$ and $b \in [5, 7]$

  E. $a \in [42, 50]$ and $b \in [-23, -19]$

6. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{63 - 33i}{4 - 5i}$$

  A. $a \in [416, 417.5]$ and $b \in [3.5, 5.5]$

  B. $a \in [9.5, 10.5]$ and $b \in [181.5, 184]$

  C. $a \in [9.5, 10.5]$ and $b \in [3.5, 5.5]$

D. $a \in [1, 4]$ and $b \in [-11.5, -10.5]$

E. $a \in [14.5, 16.5]$ and $b \in [5.5, 7.5]$

---

7. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-9 - 4i)(-6 + 2i)$$

A. $a \in [52, 58]$ and $b \in [-9.4, -7.8]$

B. $a \in [46, 50]$ and $b \in [40.42, 42.03]$

C. $a \in [59, 64]$ and $b \in [-6.19, -5.59]$

D. $a \in [59, 64]$ and $b \in [4.87, 7.82]$

E. $a \in [46, 50]$ and $b \in [-42.35, -41.86]$

---

8. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-18 + 77i}{6 - 3i}$$

A. $a \in [-339.5, -338]$ and $b \in [8.5, 10.5]$

B. $a \in [-4, -2]$ and $b \in [-26.5, -25]$

C. $a \in [-9, -6]$ and $b \in [8.5, 10.5]$

D. $a \in [2, 3]$ and $b \in [11, 12]$

E. $a \in [-9, -6]$ and $b \in [407.5, 409]$

---

9. Simplify the expression below and choose the interval the simplification is contained within.

$$20 - 2 \div 6 * 12 - (11 * 4)$$

A. $[-27.1, -23.8]$

B. $[19, 21.7]$

C. $[61.4, 65.5]$

D. $[-28.6, -25.1]$

E. None of the above

10. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{450}{5}} + \sqrt{132}i$$

A. Not a Complex Number

B. Rational

C. Pure Imaginary

D. Nonreal Complex

E. Irrational

11. Simplify the expression below and choose the interval the simplification is contained within.

$$8 - 6 \div 16 * 12 - (18 * 2)$$

A. $[-30.3, -28.4]$

B. $[43.6, 44.1]$

C. $[-32.9, -30]$

D. $[-28.5, -25.6]$

E. None of the above

12. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{24}{0}}$$

A. Whole

B. Not a Real number

C. Integer

D. Irrational

E. Rational

---

13. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{-1716}{13}}$$

A. Whole

B. Integer

C. Not a Real number

D. Rational

E. Irrational

---

14. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-1568}{14}} + \sqrt{0}i$$

A. Irrational

B. Pure Imaginary

C. Rational

D. Nonreal Complex

E. Not a Complex Number

---

15. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(8 - 6i)(-7 - 5i)$$

A. $a \in [-28, -18]$ and $b \in [81, 84]$

B. $a \in [-87, -83]$ and $b \in [-4, 0]$

C. $a \in [-56, -53]$ and $b \in [29, 33]$

D. $a \in [-28, -18]$ and $b \in [-85, -80]$

E. $a \in [-87, -83]$ and $b \in [0, 5]$

16. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-45 - 11i}{3 - 4i}$$

A. $a \in [-5.5, -3.5]$ and $b \in [-9.5, -8]$

B. $a \in [-8, -6.5]$ and $b \in [5.5, 6.5]$

C. $a \in [-17, -14]$ and $b \in [1, 4]$

D. $a \in [-5.5, -3.5]$ and $b \in [-213.5, -212.5]$

E. $a \in [-91.5, -90]$ and $b \in [-9.5, -8]$

17. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-6 + 2i)(-10 + 4i)$$

A. $a \in [58, 62]$ and $b \in [6, 15]$

B. $a \in [66, 71]$ and $b \in [0, 5]$

C. $a \in [45, 55]$ and $b \in [37, 45]$

D. $a \in [66, 71]$ and $b \in [-7, -1]$

    E. $a \in [45, 55]$ and $b \in [-45, -43]$

18. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-36 - 11i}{6 - 2i}$$

    A. $a \in [-5.99, -5.93]$ and $b \in [-1, 1]$

    B. $a \in [-4.87, -4.85]$ and $b \in [-4.5, -3]$

    C. $a \in [-6.01, -5.96]$ and $b \in [4, 6]$

    D. $a \in [-4.87, -4.85]$ and $b \in [-138.5, -137.5]$

    E. $a \in [-194.02, -193.99]$ and $b \in [-4.5, -3]$

19. Simplify the expression below and choose the interval the simplification is contained within.

$$17 - 8 \div 15 * 9 - (13 * 5)$$

    A. $[-54.8, -50.8]$

    B. $[-50.06, -44.06]$

    C. $[76.94, 82.94]$

    D. $[-8, -0]$

    E. None of the above

20. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{0}{49}} + \sqrt{5}i$$

    A. Rational

    B. Nonreal Complex

C. Pure Imaginary

D. Not a Complex Number

E. Irrational

---

21. Simplify the expression below and choose the interval the simplification is contained within.

$$5 - 6 \div 16 * 19 - (4 * 18)$$

A. $[-114.25, -107.25]$

B. $[76.98, 80.98]$

C. $[-78.12, -69.12]$

D. $[-69.02, -64.02]$

E. None of the above

---

22. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{144}{49}}$$

A. Irrational

B. Not a Real number

C. Whole

D. Rational

E. Integer

---

23. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{840}{14}}$$

A. Not a Real number

    B. Irrational

    C. Rational

    D. Integer

    E. Whole

24. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{\sqrt{143}}{6} + \sqrt{-4}i$$

    A. Rational

    B. Irrational

    C. Pure Imaginary

    D. Nonreal Complex

    E. Not a Complex Number

25. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(7 + 3i)(-4 + 2i)$$

    A. $a \in [-35, -33.3]$ and $b \in [0.3, 2.6]$

    B. $a \in [-35, -33.3]$ and $b \in [-2.4, 1.6]$

    C. $a \in [-24.9, -18.6]$ and $b \in [-26.5, -22.1]$

    D. $a \in [-32, -27.2]$ and $b \in [5.6, 8.2]$

    E. $a \in [-24.9, -18.6]$ and $b \in [24.6, 26.8]$

26. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{27 - 44i}{-5 + 8i}$$

A. $a \in [-487.16, -486.97]$ and $b \in [0, 0.7]$

B. $a \in [2.33, 2.62]$ and $b \in [4.55, 5.45]$

C. $a \in [-5.45, -5.34]$ and $b \in [-5.55, -5.15]$

D. $a \in [-5.51, -5.42]$ and $b \in [3.95, 4.45]$

E. $a \in [-5.51, -5.42]$ and $b \in [0, 0.7]$

---

27. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-3 + 8i)(2 - 6i)$$

A. $a \in [-7, -2]$ and $b \in [-48.7, -45.3]$

B. $a \in [-57, -50]$ and $b \in [-2.8, -1.7]$

C. $a \in [33, 47]$ and $b \in [31.5, 36.6]$

D. $a \in [-57, -50]$ and $b \in [-0.9, 2.4]$

E. $a \in [33, 47]$ and $b \in [-35.5, -30.9]$

---

28. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{9 + 66i}{-8 - 3i}$$

A. $a \in [-270.5, -269]$ and $b \in [-7, -5.9]$

B. $a \in [1.5, 3]$ and $b \in [-7.7, -7.25]$

C. $a \in [-4.5, -3]$ and $b \in [-501.35, -500.4]$

D. $a \in [-4.5, -3]$ and $b \in [-7, -5.9]$

E. $a \in [-2.5, 0]$ and $b \in [-22.35, -21.45]$

---

29. Simplify the expression below and choose the interval the simplification is contained within.

$$18 - 16^2 + 2 \div 8 * 14 \div 20$$

A. $[-238.04, -237.96]$

B. $[273.92, 274.05]$

C. $[-237.85, -237.78]$

D. $[274.15, 274.18]$

E. None of the above

30. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-490}{0}}i + \sqrt{176i}$$

A. Pure Imaginary

B. Nonreal Complex

C. Not a Complex Number

D. Rational

E. Irrational